higher utilization rates and thus lower investment is fine, but it leads to higher maintenance expenses. So what does that tell you? It tells you lower investment means higher expense. So it's a tradeoff in the opposite direction from the one that, for example, the Hatfield folks assume, where the two are proportional. So that's a basic problem. The answer, the key — to the extent there is one — is learning first from history, and second, disaggregating, disaggregating by technology, by copper fiber, by type, aerial, buried or underground, and by activity. And then using the mix of technology type and activity changes that we see going forward, to get changes in expenses going forward. Thank you.

William Sharkey, FCC

Thank you. We now have one-minute rebuttals in the same order. Peter?

Peter Copeland, U S West, Inc.

Well, we feel that BCPM does include a forward-looking mix of technologies so that the expenses are matched where the forward looking where more fiber would be placed. BCM2, the data request, asked to look at productivity gains as well as that technological shift from copper to fiber, in the data request. The BCPM also allows for you to have expenses for small companies, medium and large. Right now, our data only is set for large companies, but the model is set up to include the exact

same level of detail for small and medium companies as well. While we would like to have a verifiable way of providing the data, and I think we'll work on providing back-up data that supports that, as we heard here, there are some things — it's a forward look. And it's the best cut. You have to look back at your historical expenses that are associated with basic service and see if it looks reasonable. We think we have given you the tools to look, to examine the expense levels and match them to the regulatory needs.

William Sharkey, FCC

Thank you. Mark?

Mark Bryant, MCI

Yes, just a couple of points. To respond to David's comment on the power being a portion of the network operations expense, I think we said that the 70% was a conservative, we felt, reduction. And I would also take issue that it's a key component of the network operations expense category. For the Tier 1 companies in 1995, the total network operations expense per line on average was a little over $47.00 power amounted to 289 or what is that, about 7% of the total expense category. In response to Roger's comment about the need to reflect company-specific differences in expenses, we've tried very hard to make our expenses match regional differences, to take account of the different experiences and different conditions that each company

faces. And in fact, all of the Hatfield expenses are drawn from company-specific information for each state and do reflect those. We don't try and do things on a nationwide average basis.

William Sharkey, FCC

Thank you. Ben?

Ben Johnson, Ben Johnson Associates

A couple of quick comments. One, I'm enjoying listening to Bill Taylor and his starting to get frustrated with the lack of adequate refinement of these kinds of costs. For many years from the perspective of working for regulators I've had that exact same frustration with his clients' studies that were submitted supporting Centrex prices, supporting a whole variety of different services, and they have taken the same simplified approach that we've taken, which is to apply a percentage factor to the investment. It works up to a point, but I'll be the first one to admit more work's needed. There are aspects of the costs that are not in fact a function of the investment, and which are separably study-able, but you need good data to do it. Unfortunately I think BCPM, at least to the extent they're trying to apply this per-line approach to something like central office switching or cable investment expense categories, has gone way too far to the extreme of simplifying the way the relationships between aerial and underground and the other kinds of things that you need to be able to study. At least by having appropriate

percentages that you apply to the investment when you're looking at those tradeoffs, you're getting at least a reasonable feel for that decision.

William Sharkey, FCC

Thank you. Roger?

Roger White, GTE Telephone Operations

On the expenses again. Going back, what we're dealing with again is a time series, a forward-evolving type of process rather than an embedded process, and this is key to keep in mind, because it's quite often been referred to, whatever's on the books is an embedded item. And they actually represent the best projection of what will occur. You won't see 30% drops in expenses from one time period to another. This is not something one would expect to see. It's not something that would be forecasted in terms of based on the historical information.

William Sharkey, FCC

Thank you. Bob?

Robert C. Schoonmaker, GVNW Inc./Management

Susan mentioned a little bit about expense efficiency and being careful about forward-looking projections. In looking at the models and the model results, I was interested as I was

coming out here to look at the Hatfield results on Southwestern Bell/Texas which showed expense levels at about 43% of their actual levels, and I was thinking of the file that I have in my office that I've collected over the last couple of years of articles about state public service commissions who have had investigations of cited, fined and otherwise chided the Bell operating companies for lack of providing adequate service both in terms of quality of maintenance, in terms of timeliness of providing new investment, and so forth. And when I see results from models that show major differences from the embedded costs, I have a hard time reconciling those to an environment which suggests that currently there is not being enough money expended, either for maintenance or investment to provide adequate service to customers.

William Sharkey, FCC

Susan?

Susan Baldwin, Economics and Technology, Inc.

Let me simply echo the theme that there really aren't enough data on the table right now for the Joint Board and for regulators to make informed decisions, not only about the inputs, what are the appropriate operating expenses to include in an efficient, forward-looking model, but also what's the proper algorithm? Should it be a per-line input, or should it be investment driven, or some blend of the two? And let me follow

that up by suggesting that where there are states that have recently examined at a very disaggregated level, expenses, state PUCs may be able to forward relevant information both to the Joint Board and to the FCC.

William Sharkey, FCC

David?

David Dowds, Florida Public Service Commission

Just briefly, I agree wholeheartedly with Susan that we just need to figure out what procedure is being placed in front of us now, and determine whether or not the relevant cost drivers have in fact have been identified. At this time we can't say without doing our homework and getting more data.

Laurits R. Christensen, Christensen Associates

And I would agree, and add, but the standards for identifying costs haven't changed. I mean, the obligation that the regulator has to make sure that the money it is responsible for is well spent, hasn't changed, and the standards for judging that haven't changed. I guess I'd like to address three quick questions. First, what is the driver? Is the driver investment, is the driver lines? Well, you can make fun of both of them, I think. That is, investment is surely a bad approximation in a whole lot of cases, where, particularly for example, in a Hatfield Model switches are purchased at very low prices because

the capacity is bought all at once. But that by itself, then, means that the associated maintenance expense is very low, and no one intends that to be true. On a per-line basis, Ben Johnson raises a fine point, that that doesn't make all that much sense either, except that when done company-by-company on company-specific data, the problems disappear, or some of those problems disappear. And finally, the idea of lowering expenses by an assumed reduction in the 30% for productivity growth, you have to be careful because that double counts productivity growth that comes through changes in investment and technology.

William Sharkey, FCC

Okay, do we have any specific rebuttals to any of the rebuttal comments?

Male Voice

If I could respond to that last point, the application of the 30% reduction. We take network operations expense on a per-line basis, so investment doesn't enter into the picture.

Male Voice

Yes, but that wasn't my point. The point is, I think we all agree that expenses, indeed all unit costs, are coming down at some rate due to technological progress, but part of that is embodied in the capital stock. That's what comes about when the companies move from copper to fiber, and from analog to digital

switching. And it's double counting to let that process go on and lower unit costs, but then on top of that to try to apply a reduction to the components of those expenses. That was my double counting point.

William Sharkey, FCC

Okay, thank you. Okay, we'll move to the next question. The models rely on ARMIS data or other information provided by large companies to determine expenses. Most small companies, however, do not report ARMIS data. What alternative data bases can be used to establish reasonable expenses for the small companies? Which user adjustable inputs can be used to modify a model's default treatment of expenses for small companies? How can differences in labor costs be incorporated in model expense estimates? And Mark, could you begin?

Mark Bryant, MCI

Sure. I think being able to deal with the expenses for small companies may have been a perceived deficiency in the Hatfield Model since our first release back in August contained information only for the RBOCs and we have since rolled out information on a state-by-state basis primarily for Tier 1 companies. AT&T and MCI in our joint fillings with the Joint Board, have provided information for all LECs in each of the state study areas. And we do believe that we can do it.

And part of the difficulty that we've had in dealing with small companies is not because the Hatfield Model is deficient, but because it deals in a very detailed way, with state-specific cost information and with state-specific information on lines and on traffic patterns generated by customers. We have developed techniques since our initial filing of the model — of the Release 2 model — to develop factors for application to smaller companies that are based on all of the Tier 1 companies in each state study area. We feel that although certainly the RBOCs and some of the larger independents have a more urban sort of experience and more urban type of networks, that there should not for — by density zone and by CBGs that are similar, there should not be that much variance in the cost experience by one of the Tier 1 companies and one of the smaller independents. And we feel therefore that this is a valid technique. With the Release 3 version of the Hatfield Model, we will be including information that will permit the model to be run for all companies.

William Sharkey, FCC

Thank you. Ben, can you give it the a second response?

Ben Johnson, Ben Johnson Associates

Yes. To the extent you accept the notion of continuing to use percentage application to investment as a way of estimating the expenses, one advantage of that is it is readily applicable

to other companies. If you've estimated their investment, then you can apply the appropriate percentage to that investment. To the extent that investment has been fine-tuned to give you an accurate figure for the small company, and thus in turn the expense would follow from it. On the other hand, if you're willing to say, no, we really need better data than we've ever had, and we really ought to find out what these costs are really driven by, and not simply accept the investment as a stand-in, or as an indicator of the expense, two things: One, we can do data requests, certainly the FCC can ask at least a sample of these small companies to provide some kind of appropriate detailed data. Two, within the big companies, they have a wide array of wire centers or regions or sections of their companies that could be used to generate data. To the extent they have work centers or other areas where work forces are working, we can gather data that later econometrically we could use to actually figure out how much do you save when you switch over to fiber? How much do you save when you switch to other technologies or other decisions, such as buried versus aerial? Because we can get a big enough data set to understand what the true relationships are. So I think that kind of effort could involve both the small companies and better data gathering from the big companies that would allow us to generalize back out to the small companies.

William Sharkey, FCC

Thank you. Peter?

Peter Copeland, U S West, Inc.

In the BCPM, we recognize that there are differences between small, medium and large companies. At the current time, we have only the expense dollars and investment dollars for the large companies, but we have made accommodations so that we could have an alternative medium and small company switch curve, alternative costs for the expense levels as well. So those factors are already built into the model. They are ready to accept when data is available. Right now, we haven't had data from the small companies provided to us to include that in the model. There are, like Ben was suggesting, I think statistical techniques that can be used. There are REA, RUS data available on small companies. And I would assume that there would be NECA data as well that could be provided in the data request to help create small company values that could be input into the model. I think what we're trying to accomplish by having these separate inputs for both the large, medium and small companies is to recognize the economies and scales of scope that go with being a large company in purchasing power, and in covering your overheads and in providing customer services. So yes, these need to be recognized and I think we have built a tool that can do that. And now we need to go and get the underlying data to fill those areas with.

William Sharkey, FCC

Thank you. Susan, can you continue?

Susan Baldwin, Economics and Technology, Inc.

Speaking as someone who has spent a fair amount of time looking at the different models and realizing the work that there is ahead of us, as a threshold matter, I would find it enormously helpful to better understand the overlap between small telcos, which is the topic of this question, and rural carriers which are exempted for three years from the cost proxy model. Clearly, we need to answer these questions, but I'm wondering in terms of timing, how much time we have. How much overlap is there. That being said, we need some kind of starting point for small telcos and it seems that, for lack of another starting point, we would start with the Tier 1 companies and then look to small telcos to step forward and to identify where and how their expenses differ from ILECs. And I think it's helpful to think about what's causing the difference. Is it a sizing issue, just the shear size of a Tier 1 ILEC allows it to command a much higher switch discount, let's say. And that's clearly a small/big company type of difference. Or is it a regional difference? It might be a high-cost area and therefore one of the elements of the high cost might be high labor rates. But, presumably, those high labor rates are faced by the small company and the large company. So that's not necessarily a small versus large company difference.

I think in looking at a cost proxy model, it's important to understand what's causing the difference in the expenses faced by a small telco versus a large telco.

William Sharkey, FCC

Thank you. David?

David Dowds, Florida Public Service Commission

To be honest, I don't have a whole lot to add to this, but to my mind, what I'm hearing confirms my suspicion that namely that this is an empirical issue. We need to do our homework, we haven't done any statistical analysis, we haven't done the data gathering. Surveys have been sent out; people need to look at the raw data. I would note, by the way, for Florida this is not a problem because all of our Florida LECs are required to file an annual report which is essentially in ARMIS format.

William Sharkey, FCC

Thank you. Bill?

William E. Taylor, National Economic Research Associates, Inc.

We've been focusing on small companies because that's the way we're organized. Let's remember, though, that's not the way the question is asked. One way of rephrasing the Joint Board's question is: What are the forward-looking incremental costs of an efficient entrant? Nobody ever said an efficient entrant is going to be the size, the territory or anything that looks like a small telephone company. They exist where they exist for weird, historical reasons that just may not be efficient going forward.

So, questions like looking at what the small telephone company experience has been with discounts for example, as Susan suggested, while useful for telling you what's going to happen to the small telephone companies, about which many of us care passionately, is not, I argue, useful for telling us what the costs of an efficient entrant are going to be. And whether we like it or not, that's the costs that competition is going to unleash on these telephone companies about which we care, so let us not be blinded into thinking that the costs that an efficient entrant will face out there are the same costs that a tiny little telephone company that is there historically has been. Having said that, let's also not kid ourselves. The Commission has looked at this issue for years. We've been doing average schedule cost studies for small telephone companies since time immemorial. The problems of getting that data, of applying that data to different companies, is made no more easy because it's trying to be put on a forward-looking basis than it has been to do it on an historical basis. More important, I guess, is the standard of accuracy, the standard by which money flows between companies and prices for unbundled network elements get set has to be the same sort of accurate standards that you've used in your accounting work at the FCC, at NECA in establishing the high-cost funds and things like that. Proxy cost models, I'm afraid, don't fit in very well into that story.

William Sharkey, FCC

Thank you. Bob?

Robert C. Schoonmaker, GVNW, Inc./Management

Mr. Taylor's assertion that the efficient entrant is always going to be a large company, I think is an interesting one that could be debated and I won't do that now other than to say that I think if one takes quality of service into account, that certainly is an issue that could be questioned in rural areas, and whether large providers are really the most inefficient providers of good quality service. In terms of the specific question and data sources available, there are a number of them. Mr. Dowds mentioned that his state has an annual report that has to be filed by small companies. Virtually all state commissions require almost all small companies to file reports at a state level that have ARMIS level of detail. It's generally in paper format, not in mechanical, and perhaps more difficult to access but that data is there. In 1995, this Commission issued a data request to all companies in the country, both large and small, that required a vast amount of data that was gathered and has been distributed and is available. It may not, in all cases, be at the level of detail that the models currently ask for them, but there is data there. And certainly NECA is another potential source of data, at least for the cost companies, and has a great deal of information that could be accessed, and I'm sure the companies would give permission for it to be accessed to be used for this purpose.

So I think the data is there, I think the effort hasn't been put into that to get the small company information. Yet,

obviously, that's mostly embedded data that I've been talking about. But I think that would at least provide a reasonable basis for starting on this issue and dealing with cost differences between large and small companies. Nobody has addressed yet the differences in labor costs. I suspect that's intentional. I think probably on the expense side with the difficulties we're having in having in getting hands on the costs in general, to try to de-aggregate them to labor would be a difficult project at this point in time.

William Sharkey, FCC

Thank you. Roger?

Roger White, GTE Telephone Operations

The question that comes to mind is with small company data in hand, what do we do with it? Do we pool it with the large companies, in which case it would be completely lost in terms of just the magnitude of scale? Or do we treat it as a stand-alone basis so we're dealing with small, medium and large companies. If we do that, what it's saying to me is that there's some fundamental flaws with the model, that the characteristics that we have for small companies are also similarly shared in medium companies and large companies if we go to the appropriate geographic areas. We look at the kinds of problems that cause these costs to arise. If we get at the fundamental structure of what's driving the cost, then I don't think we have distinctions

between large, medium and small companies. And I think we have one model that fits all in terms of being able to handle this. Whether we can get to that level, I'm not sure. It requires a very, very detailed knowledge about each one of the processes within a company in order to make these kinds of distinctions in terms of making the variations on it. If we think about the line switch, the difference between the 80,000 line and the 40 2,000 line switches. Using that as an example, again, we see where using the common statistic results in some major problems. Likewise, where every other kind of cost structure that we're looking at, without knowing the detailed underlying structure of what's driving this cost, then any surrogate model that we do, any proxy model that we come up with, is going to carry with it intrinsic biases.

William Sharkey, FCC

Thank you. We now have time for a one-minute response from each panelist again in the same order. Mark?

Mark Bryant, MCI

I'm not sure there's a great deal to rebut. I would agree with Roger that it would be desirable to come to a model that would work for a given geographic region equally well for small companies and large companies. I believe that's a desirable goal to achieve. I think that is what we are attempting to do with

the approach that we're developing toward modeling small companies.

William Sharkey, FCC

Bill?

William E. Taylor, National Economic Research Associates, Inc.

I think what we need to be doing is, first, we need to gather data. Once we have more data, and I think we need more than one data point from Bell South for example. Surely they can give us dozens, if not hundreds of data points. They must have regional or other work centers around which data is being aggregated before it's reported to ARMIS. If so, the size of our data base and our econometrics gets much more powerful. In any event, we get the data we can, and we need to start doing some econometric testing to try to see if we can find meaningful relationships between the expenses and the investments, or factors that are related to investments, such as number of lines per wire center, to address the question that was raised earlier. Or lines per square mile, or other factors such as the percentage of aerial, buried and underground. Those are percentages and underlying relationships that are generic to these models, so that once you find a relationship between the expense and these factors, you can have some confidence that you can roll out those relationships to small companies and have accurate estimates of

expenses. Right now, we've got the best we can, but it's not as good as it should be.

William Sharkey, FCC

Peter?

Peter Copeland, U S West, Inc.

Well, BCPM's purpose is, again, to develop costs on a small geographic basis, however it feels that just having numbers and expenses developed for large companies isn't sufficient to recognize as costs in these areas that are served by the smaller companies, which are of smaller scale. You need to recognize the kind of costs and scales of economy they face in providing maintenance to their plant and in providing other services, customer operations, and those sort of things where you have basic expenses that have to be met, answering customer's calls, that can't be done on the same scale and scope that a company might be able to do with regional centers. So, if those companies are to be allowed a chance to participate in the future, you can't expect those kind of companies to gain the productivity gains that the large companies might be able to gain. We think those differences need to be reflected in how they operate. But, basically, we do need to come up with the data. There has been data submitted that shows differences in large companies versus small company expenses.

William Sharkey, FCC

Thank you. Susan?

Susan Baldwin, Economics and Technology, Inc.

To reiterate an earlier point that I made, as we go through this process of gathering more data, I would continue to recommend that we seek to differentiate between regional differences that have nothing to do with the size of the company — a hurricane, a snow storm, affects all companies likely in a similar fashion — versus a size-related difference in expenses.

David Dowds, Florida Public Service Commission

I have no further comments on this question.

William E. Taylor, National Economic Research Associates, Inc.

Oddly enough, I agree very much with what Susan said, that the trick is going to be breaking costs down by density, by area, by physical characteristics. And to the extent that that's what makes expense for small telephone companies different, fine. We can hope then to tune, as Ben Johnson suggests, the proxy cost model to handle that. To the extent that it's something different, that it's size related, that it's an inability to gain economies of scale, then I think we have to bite the bullet and recognize that this cost function that is coming about may not be one that results in a small local telephone companies thriving in

the environment that this world will produce. I don't claim that all entrants into rural areas are going to be large companies. On the other hand, when MCI Metro, or the AT&T's of the world survey the possible markets out there, they don't see the telephone company barriers, traditional territories that we all see. To the extent that there aren't natural barriers, there is no reason why a small company needs to serve that territory.

William Sharkey, FCC

Thank you. Does panelist have anything else to say on small companies or any other aspects of this question? All right. We will move on. The BCM2 includes 75% of $133.39 per year or $8.34 per month per line to reflect non-plant-related expenses such as marketing and customer operations. The BCPM contains a default value of $5.06 per month per line for marketing, customer operations and corporate expenses. The Hatfield Model includes a monthly factor of $1.22 — that's the previous version, I believe — to account for bill generation and bill inquiries relating to basic local service. The adjustable 10% overhead factor in the Hatfield Model may also include some customer related expenses. What specific marketing, customer operation and corporate expenses should be included in the models? What is the impact of the reduction from $8.34 to $5.06 per month per line for marketing, customer operations and corporate expenses on the nationwide support estimates? Should these expenses be modeled as a function of the number of lines or as a function of the

level of all other expense? How should regulators adjust these expenses over time? And we'll begin with Ben Johnson this time.

Ben Johnson, Ben Johnson Associates

Sure. I think these are expenses that are not a function of investment, and thus the appropriate way to deal with them is as a separate issue. Whether you estimate them as a uniform amount per line, or whether you take them into account in deciding on how to take these results and match them against a revenue benchmark, or some combination of the two, is one of the decisions you have to make as a Joint Board. I find it interesting that the BCPM folks have decided to drop from $8.34 to $5.06. I wonder if that is coincidental that they have just been in the throes of having to defend very low percentage differences between wholesale and retail costs, and perhaps that has given them a new view of these costs. But in any event, I do think there is more work needed here. The fact is that whatever the level of marketing and corporate expenses, surely they are less than proportional to basic local service. It is the least complicated service to sell, it's the one the average customer is stable and continues to use in a uniform fashion. It's the other services, the class services and the like, where they call up and they ask questions or they get confused or they complain about their bill. And to a similar degree, toll is intensive in that way. People are churned, people are moving between carriers, they complain about the bill, they ask questions about the rates. So any attempt to take broad aggregate ARMIS data and assume on a

per-line basis that that's a meaningful number for local service, is clearly biased upward. At best, what we have to deal with is either we've got to break that down in greater detail, or we have to just use some judgments and pick a number that is less than pro rata, because we know that the basic services we're talking about here don't require the same level of corporate management, marketing or customer operations as the more complex services that are offered by these companies.

William Sharkey, FCC

Thank you. Peter, do you want to respond?

Peter Copeland, U S West, Inc.

Yes. Now BCPM feels that these are expenses for the — the direct expenses for the customer operations and marketing should be on a per-line basis, as well as the overheads of the corporate operations. We have looked in our forward-looking models, or our forward-looking studies are looking only at these costs relative to basic local service. We have not included the costs associated with marketing or the account, taking care of accounts, for the vertical services. So this is just the dollars that are associated with a basic local service. We think that when you do these expenses on other than a per-line method, such as the Hatfield Method, using the 10% for overhead which also is sort of mixed in with some of the marketing expenses and the customer operations expenses which are direct, that you get some

customers, in say a rural area carrying a higher total dollar amount per line than an urban customer would in overhead. I think there is an example by Roland Curry yesterday of an $80 rural customer picking up $8.00 a line for corporate overhead where an urban customer with $8.00 cost would be picking up 80 cents. So there doesn't seem to be equity in that method for allocating that account.

We feel that our percentages of, be it total account, customer operations and marketing, our amount is approximately 44% of the embedded amount per line. So we are looking at just those expenses related to basic local service. Our corporate operations are about 41% of the total amount on a per-line basis. So we feel, again, we are looking at an amount that is related to basic local service. If you look at the plant accounts, there are approximately 64% of total plant is related to your basic local service. So, it's obvious that we are looking at these expense accounts on a reasonable, conservative basis.

William Sharkey, FCC

Thank you. Mark?

Mark Bryant, MCI

There are really two parts to this question, the first being what should be included in these expense categories, and secondly, should they be done on a per-line or on a proportional basis. Let me talk first about the customer operations set of

accounts. I think that one thing that it's very important to recognize is that we have to be careful about what kinds of expenses are included in this account. If we are using the same model for the pricing of universal service and for the pricing of unbundled network elements, the inclusion of any of the marketing expenses that a local exchange carrier incurs in competing with the new entrants could result in serious anti-competitive consequences. That is, the new entrant basically would be funding the marketing campaigns that are being directed against them. So that's a serious consideration that needs to be taken into account. The $1.22 per line that we include on a per-line basis for customer operations is designed to cover the bare bones expenses of being able to render bills to local customers and to respond to complaints or inquiries about those bills, and is not, nor should it, include any of the marketing expenses. Those expenses ought to be recovered from services such as second residential lines or the vertical services that LEC offers in conjunction with that local exchange service.

As far as the corporate operations expense, we determined through a regression analysis that there was a very close fit between the amount of corporate operations expense and the level of all other expenses, aside from the corporate operations expense. And that's the way that we develop the corporate operations expense in the model. We believe that that's a reasonable way to do it. For one thing, these corporate operations expenses have to be shared amongst all of the services that the phone company provides. And a lot of those services